

Claims for entering US national phase

I claim:

1. Device for frequency synthesis, comprising oscillator means that can be driven for the purpose of generating, at a frequency out of a set of at least two possible output frequencies, an output signal that can be picked off at an output, and a control device for driving the oscillator means,
wherein
the control device is of such design that, for the purpose of generating a desired frequency that is not included in the set of possible output frequencies, it drives the oscillator means in such a way that the latter alternately generate at least two different output frequencies, out of the set of possible output frequencies, in such a way that the average value of the generated output frequencies over a certain time period is substantially the desired frequency.
2. Device according to claim 1,
wherein the control device is adapted to drive the oscillator means with a bit stream generated according to the delta-sigma-principle.
3. Device according to claim 1,
wherein the control device is of such design that it drives the oscillator means in such a way that the at least two generated output frequencies are alternated at an average frequency that is greater than the reciprocal value of the certain time period.

4. Device according to claim 1,
wherein the control device is of such design that it drives the oscillator means in such a way that the at least two generated output frequencies are alternated at an average frequency that is greater than the at least two possible output frequencies.
5. Device according to claim 1,
wherein the control device is of such design that it drives the oscillator means in such a way that the at least two generated output frequencies are alternated at an average frequency that is less than the at least two possible output frequencies.
6. Device according to claim 1,
wherein the oscillator means comprise a digitally controlled oscillator.
7. Device according to claim 1,
wherein the oscillator means comprise a ring oscillator, wherein a current, out of a set of possible currents, can be supplied to the ring oscillator for the purpose of driving same.
8. Device according to claim 1,
wherein the oscillator means comprise an LC element through which the output frequency can be determined.
9. Device according to claim 8,
wherein a total capacitance of the LC element includes at least one capacitor that can be switched for the purpose of driving the oscillator.

10. Device according to claim 8,
wherein the capacitance of the LC element includes at least one varactor diode that can be driven for the purpose of driving the oscillator.
11. Device according to claim 1,
wherein the device comprises a frequency divider which is connected to the output of the oscillator means.
12. Device according to claim 1,
wherein the device is of digital design.
13. Method for frequency synthesis by means of oscillator means that can be driven for the purpose of generating an output signal (f_{OUT}) having an output frequency out of a set of possible output frequencies,
comprising the step of
for the purpose of generating a desired frequency that is not included in the set of possible output frequencies, driving the oscillator means in such a way that they alternately generate at least two different output frequencies, out of the set of possible output frequencies, such that the average value of the at least two generated output frequencies over a certain time period corresponds to the desired frequency.
14. Method according to claim 13,

wherein driving the oscillator means comprises
driving the oscillator means with a bit stream
generated according to the delta-sigma-principle.

15. Method according to claim 13,
wherein the at least two generated output frequencies
are alternated at an average frequency that is
greater than the reciprocal value of the certain time
period.
16. Method according to claim 13,
wherein the at least two generated output frequencies
are alternated at an average frequency that is
greater than the at least two different output
frequencies.
17. Method according to claim 13,
wherein the at least two generated output frequencies
are alternated at an average frequency that is less
than the at least two different output frequencies.